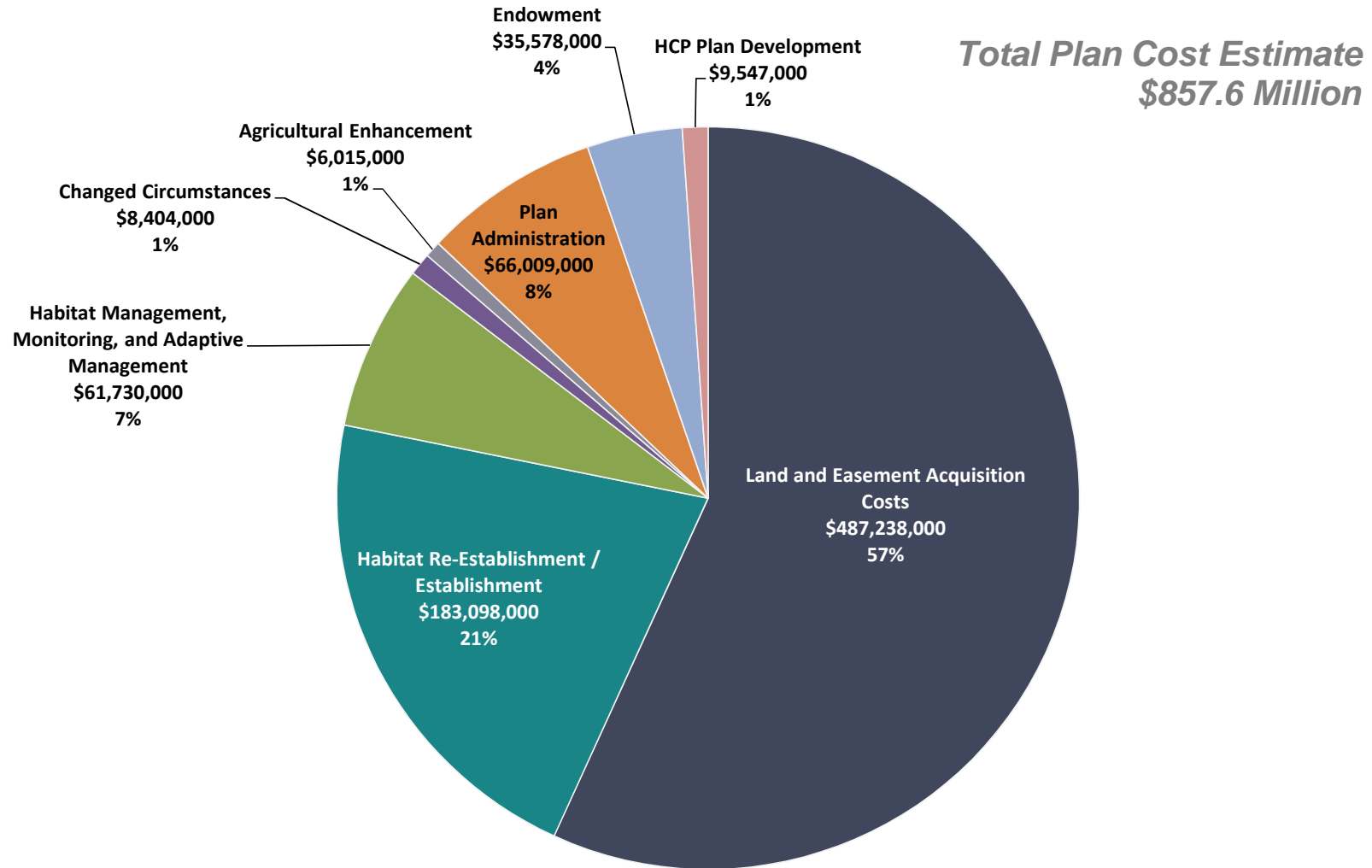


**APPENDIX I**  
*SSHCP Economic Model*



# SSHCP Implementation Cost Summary (2015\$)



**Figure 1**  
**SSHCP Implementation Cost Summary (2015\$)**  
**South Sacramento Habitat Conservation Plan Cost Analysis**

<b>Cost Category</b>	<b>Preservation Cost Estimate</b>	<b>Re-Establishment/ Establishment Cost Estimate</b>	<b>Total Cost Estimate</b>	<b>Distribution</b>
Land and Easement Acquisition Costs	\$463,903,000	\$23,334,000	\$487,238,000	56.8%
Habitat Re-Establishment / Establishment	\$0	\$183,098,000	\$183,098,000	21.3%
Habitat Management, Monitoring, and Adaptive Management	\$57,272,000	\$4,458,000	\$61,730,000	7.2%
Changed Circumstances	\$7,822,000	\$582,000	\$8,404,000	1.0%
Agricultural Enhancement	\$6,015,000	\$0	\$6,015,000	0.7%
Plan Administration	\$62,758,000	\$3,251,000	\$66,009,000	7.7%
Endowment	\$33,723,000	\$1,855,000	\$35,578,000	4.1%
HCP Plan Development	\$9,077,000	\$470,000	\$9,547,000	1.1%
<b>Total</b>	<b>\$640,570,000</b>	<b>\$217,048,000</b>	<b>\$857,617,000</b>	<b>100.0%</b>

**Figure 2**  
**SSHCP Implementation Cost Summary by Land Cover (2015\$)**  
**South Sacramento Habitat Conservation Plan Cost Analysis**

<b>Land Cover</b>	<b>Perservation Cost Estimate</b>	<b>Re-Establishment/ Establishment Cost Estimate</b>	<b>Total Cost Estimate</b>	<b>Distribution</b>
Agriculture	\$166,320,000	\$0	\$166,320,000	19%
Valley Grassland	\$418,130,000	\$0	\$418,130,000	49%
Vernal Pool	\$18,039,000	\$61,767,000	\$79,806,000	9%
Blue Oak	\$1,107,000	\$4,615,000	\$5,722,000	1%
Riparian	\$14,083,000	\$40,635,000	\$54,719,000	6%
Mine Tailing Riparian Woodland	\$3,593,000	\$28,274,000	\$31,867,000	4%
Seasonal Wetland	\$2,592,000	\$12,268,000	\$14,859,000	2%
Freshwater Marsh	\$3,762,000	\$14,229,000	\$17,990,000	2%
Swale	\$6,156,000	\$26,327,000	\$32,482,000	4%
Streams/Creeks (VPIH)	\$875,000	\$2,347,000	\$3,221,000	0%
Open Water	\$3,672,000	\$14,459,000	\$18,131,000	2%
Streams/Creeks	\$2,242,000	\$12,127,000	\$14,369,000	2%
<b>Total</b>	<b>\$640,570,000</b>	<b>\$217,048,000</b>	<b>\$857,617,000</b>	<b>100%</b>

**Figure 3**  
**SSHCP Estimated Fee Levels per Acre of Impact (2015\$)**  
**South Sacramento Habitat Conservation Plan Cost Analysis**

<b>Land Cover</b>	<b>Preservation Fee</b>	<b>Re-Establishment/ Establishment Fee</b>	<b>Total Fee</b>
Agriculture	\$17,300	N/A	\$17,300
Valley Grassland	\$20,100	N/A	\$20,100
Vernal Pool	\$39,100	\$158,800	\$197,900
Blue Oak	\$23,500	\$98,200	\$121,700
Riparian	\$37,800	\$108,900	\$146,700
Mine Tailing Riparian Woodland	\$16,500	\$129,700	\$146,200
Seasonal Wetland	\$25,000	\$116,800	\$141,800
Freshwater Marsh	\$30,700	\$112,000	\$142,800
Swale	\$24,500	\$112,500	\$137,000
Streams/Creeks (VPIH)	\$41,100	\$106,700	\$147,800
Open Water	\$24,700	\$93,300	\$118,000
Streams/Creeks	\$19,200	\$103,700	\$122,900

**Figure 4**  
**SSHCP Impacts and Mitigation Requirement Summary by Land Cover (Acres)**  
**South Sacramento Habitat Conservation Plan Cost Analysis**

Land Cover	Impacts		Ratio Equivalence		Conservation Acreage		
	Direct	Indirect	Preservation Ratio	Re-Establishment/ Establishment Ratio	Preservation	Restoration/ Creation	Total
Agriculture	9,696	0	1.0	0.0	9,696	0	9,696
Valley Grassland	22,014	0	1.0	0.0	22,014	0	22,014
Vernal Pool	389	94	2.0	1.0	966	389	1,355
Blue Oak	47	0	1.0	1.0	47	47	94
Riparian	373	0	2.0	1.0	746	373	1,119
Mine Tailing Riparian Woodland	218	0	1.0	1.0	218	218	436
Seasonal Wetland	105	0	1.0	1.0	105	105	210
Freshwater Marsh	127	0	1.0	1.0	127	127	254
Swale	234	44	1.0	1.0	278	234	512
Streams/Creeks (VPIH)	22	4	1.0	1.0	26	22	48
Open Water	155	0	1.0	1.0	155	155	310
Streams/Creeks	117	0	1.0	1.0	117	117	234
<b>Total</b>	<b>33,497</b>	<b>142</b>			<b>34,495</b>	<b>1,787</b>	<b>36,282</b>

**Figure 5**  
**SSHCP Conservation Summary by Land Cover (Acres)**  
**South Sacramento Habitat Conservation Plan Cost Analysis**

Land Cover	Preservation Required	Hardline Preservation	HCP Land Acquisition		Total
			Net Preservation	Re-Establishment/ Establishment	
Agriculture	9,696	75	9,621	0	9,621
Valley Grassland	22,014	1,650	20,364	0	20,364
Vernal Pool	966	63	903	389	1,292
Blue Oak	47	0	47	47	94
Riparian	746	0	746	373	1,119
Mine Tailing Riparian Woodland	218	0	218	218	436
Seasonal Wetland	105	2	103	105	208
Freshwater Marsh	127	6	121	127	248
Swale	278	38	240	234	474
Streams/Creeks (VPIH)	26	6	20	22	42
Open Water	155	9	146	155	301
Streams/Creeks	117	1	116	117	233
<b>Total</b>	<b>34,495</b>	<b>1,850</b>	<b>32,645</b>	<b>1,787</b>	<b>34,432</b>



**Figure 6**  
**SSHCP Fee Title and Easement Acquisition Summary by Land Cover (Acres)**  
**South Sacramento Habitat Conservation Plan Cost Analysis**

Land Cover	Fee Title Acquisitions		Easement		Total
	Acres	Percentage	Acres	Percentage	
Agriculture	1,864	19%	7,757	81%	9,621
Valley Grassland	6,422	32%	13,941	68%	20,364
Vernal Pool	647	50%	645	50%	1,292
Blue Oak	64	68%	30	32%	94
Riparian	522	47%	597	53%	1,119
Mine Tailing Riparian Woodland	252	58%	184	42%	436
Seasonal Wetland	145	69%	64	31%	208
Freshwater Marsh	206	83%	42	17%	248
Swale	331	70%	143	30%	474
Streams/Creeks (VPIH)	42	100%	0	0%	42
Open Water	211	70%	90	30%	301
Streams/Creeks	139	60%	94	40%	233
<b>Total</b>	<b>10,845</b>	<b>31%</b>	<b>23,586</b>	<b>69%</b>	<b>34,432</b>

**Figure 7**  
**SSHCP Acquisition Land Cost Estimate by PPU (2015\$)**  
**South Sacramento Habitat Conservation Plan Cost Analysis**

PPU	Fee Title Acquisitions			Easement Acquisitions			Acquisition Cost Estimate
	Acres	Avg. Per-Acre Cost Estimate	Total Cost	Acres	Avg. Per-Acre Cost Estimate	Total Cost	
PPU 1	2,156	\$28,172	\$60,743,383	0	\$22,538	\$0	\$60,743,383
PPU 2	0	\$0	\$0	0	\$0	\$0	\$0
PPU 3	1,633	\$31,621	\$51,651,149	0	\$25,297	\$0	\$51,651,149
PPU 4	506	\$26,379	\$13,356,444	0	\$21,103	\$0	\$13,356,444
PPU 5	403	\$10,606	\$4,273,774	2,283	\$8,485	\$19,374,442	\$23,648,216
PPU 6	1,412	\$12,963	\$18,300,550	8,000	\$9,074	\$72,592,182	\$90,892,732
PPU 7	2,348	\$9,074	\$21,300,754	13,303	\$7,259	\$96,563,419	\$117,864,173
PPU 8	377	\$53,284	\$20,070,964	0	\$42,627	\$0	\$20,070,964
N/A	223	\$42,781	\$9,550,744	0	\$34,225	\$0	\$9,550,744
Restoration	1,787	\$10,881	\$19,443,719	N/A	N/A	N/A	\$19,443,719
<b>Total</b>	<b>10,845</b>	<b>\$20,165</b>	<b>\$218,691,481</b>	<b>23,586</b>	<b>\$7,993</b>	<b>\$188,530,043</b>	<b>\$407,221,524</b>

**Figure 8**  
**SSHCP Acquisition Total Cost Estimate (2015\$)**  
**South Sacramento Habitat Conservation Plan Cost Analysis**

<b>Cost Item</b>	<b>Assumption</b>	<b>Total Land Cost Estimate</b>
Base Land Acquisition Cost	See <b>Figure 7</b>	\$407,222,000
Transaction Costs	5 percent of Base Cost	\$20,361,000
PDR (Preserve Documentation Record Review)	\$189 per acre	\$6,521,000
Site Improvement Costs	\$257 per acre	\$8,840,000
Contingency	10 percent	\$44,294,000
<b>Total Land Cost</b>		<b>\$487,238,000</b>

**Figure 9**  
**SSHCP Land Acquisition Summary by PPU (Acres)**  
**South Sacramento Habitat Conservation Plan Cost Analysis**

PPU	Agriculture	Valley Grassland	Vernal Pool	Blue Oak	Riparian	MTRW	Seasonal Wetland	Freshwater Marsh	Swale	VPIH	Open Water	Streams/Creeks	Total
PPU 1	1	2,000	92	0	0	2	0	0	33	17	11	0	2,156
PPU 2	0	0	0	0	0	0	0	0	0	0	0	0	0
PPU 3	188	1,304	48	12	13	0	0	8	33	3	23	2	1,633
PPU 4	20	368	3	0	22	0	22	63	1	0	6	1	506
PPU 5	369	1,848	19	0	351	0	20	3	7	0	20	50	2,686
PPU 6	8,228	640	27	0	349	0	25	41	10	0	49	43	9,412
PPU 7	529	13,914	713	35	3	216	29	6	151	0	37	19	15,650
PPU 8	287	83	0	0	0	0	5	0	2	0	0	0	377
N/A	0	206	1	0	8	0	1	0	3	0	1	2	223
Restoration	0	0	389	47	373	218	105	127	234	22	155	117	1,787
<b>Total</b>	<b>9,621</b>	<b>20,364</b>	<b>1,292</b>	<b>94</b>	<b>1,119</b>	<b>436</b>	<b>208</b>	<b>248</b>	<b>474</b>	<b>42</b>	<b>301</b>	<b>233</b>	<b>34,432</b>

**Figure 10**  
**SSHCP Re-Establishment / Establishment Cost Estimate (2015\$)**  
**South Sacramento Habitat Conservation Plan Cost Analysis**

<b>Land Cover</b>	<b>Restoration Acreage</b>	<b>Per-Acre Cost Estimate (1)</b>	<b>Per-Acre Cost w/ Contingency 10%</b>	<b>Re-Establishment/ Establishment Cost Estimate</b>	<b>Regulatory Compliance Cost Estimate 20%</b>	<b>Total Cost</b>
Vernal Pool	389	\$106,000	\$116,000	\$45,314,000	\$9,063,000	\$54,377,000
Blue Oak	47	\$60,000	\$66,000	\$3,102,000	\$620,000	\$3,722,000
Riparian	373	\$68,000	\$74,800	\$27,957,000	\$5,591,000	\$33,549,000
MTRW	218	\$84,000	\$92,400	\$20,110,000	\$4,022,000	\$24,132,000
Seasonal Wetland	105	\$74,000	\$81,400	\$8,561,000	\$1,712,000	\$10,273,000
Freshwater Marsh	127	\$70,000	\$77,000	\$9,847,000	\$1,969,000	\$11,816,000
Swale	234	\$71,000	\$78,100	\$18,234,000	\$3,647,000	\$21,881,000
VPIH	22	\$66,000	\$72,600	\$1,607,000	\$321,000	\$1,929,000
Open Water	155	\$56,000	\$61,600	\$9,595,000	\$1,919,000	\$11,514,000
Streams/Creeks	117	\$64,000	\$70,400	\$8,254,000	\$1,651,000	\$9,904,000
<b>Total</b>	<b>1,787</b>			<b>\$152,581,000</b>	<b>\$30,516,000</b>	<b>\$183,098,000</b>

(1) Includes planning and design, construction cost, and O&M costs (for initial 5 years). Also reflects success rates ranging from 65 percent to 90 percent.

**Figure 11**  
**SSHCP Management and Monitoring Cost Estimate (2015\$)**  
**South Sacramento Habitat Conservation Plan Cost Analysis**

Land Cover	Management		Monitoring		Total Cost
	Acres	Cost	Acres	Cost	
Agriculture	2,327	\$2,344,053	9,696	\$3,575,400	\$5,629,122
Valley Grassland	8,770	\$8,833,393	22,014	\$29,168,550	\$36,907,853
Vernal Pool	1,131	\$1,090,907	1,355	\$1,795,375	\$2,793,683
Blue Oak	113	\$107,659	94	\$124,550	\$224,012
Riparian	925	\$884,947	1,119	\$1,482,675	\$2,298,785
Mine Tailing Riparian Woodland	480	\$455,787	436	\$577,700	\$1,000,862
Seasonal Wetland	255	\$243,371	210	\$278,250	\$502,954
Freshwater Marsh	341	\$327,421	254	\$336,550	\$637,299
Swale	610	\$585,618	512	\$678,400	\$1,217,062
Streams/Creeks (VPIH)	70	\$67,715	48	\$63,600	\$125,333
Open Water	380	\$363,203	310	\$410,750	\$745,910
Streams/Creeks	261	\$248,593	234	\$310,050	\$540,641
<b>Total</b>	<b>15,662</b>	<b>\$15,552,666</b>	<b>36,282</b>	<b>\$38,801,850</b>	<b>\$52,623,516</b>
Contingency		\$1,555,267		\$5,820,278	\$7,375,544
<b>Total w/ Contingency</b>		<b>\$17,107,933</b>		<b>\$44,622,128</b>	<b>\$61,730,060</b>

**Figure 12**  
**SSHCP Plan Administration Cost Estimate (2015\$)**  
**South Sacramento Habitat Conservation Plan Cost Analysis**

<b>Cost Item</b>	<b>Total</b>	<b>Average Annual Cost</b>
Staff and Board Compensation (1)	\$43,672,115	\$873,442
Office and Equipment Costs	\$3,409,100	\$68,182
Additional Overhead, Professional Services, Other Costs	\$12,926,750	\$258,535
<b>Total</b>	<b>\$60,007,965</b>	<b>\$1,200,159</b>
Contingency	\$6,000,797	\$120,015.93
<b>Total</b>	<b>\$66,008,762</b>	<b>\$1,320,175</b>

(1) Assumes 7.0 Full Time Equivalent (FTE) staff at Implementing Entity from Year 5 onwards. Assumes 2.5 FTE in Year 1.

**Figure 13**  
**SSHCP Ongoing Costs and Endowment Cost Estimate (2015\$)**  
**South Sacramento Habitat Conservation Plan Cost Analysis**

<b>Land Cover</b>	<b>Management</b>	<b>Monitoring</b>	<b>Agricultural Enhancement</b>	<b>Admin</b>	<b>Total Annual</b>
Agriculture	\$20,371	\$70,325	\$77,567	\$170,541	\$338,804
Valley Grassland	\$66,126	\$551,525	\$139,413	\$372,356	\$1,129,419
Vernal Pool	\$8,364	\$33,475	\$6,450	\$29,489	\$77,778
Blue Oak	\$2,128	\$6,625	\$298	\$5,456	\$14,507
Riparian	\$4,926	\$21,275	\$5,971	\$20,749	\$52,920
Mine Tailing Riparian Woodland	\$2,914	\$8,625	\$1,837	\$9,613	\$22,988
Seasonal Wetland	\$2,877	\$8,475	\$636	\$7,698	\$19,686
Freshwater Marsh	\$1,768	\$3,725	\$423	\$4,677	\$10,594
Swale	\$3,985	\$10,825	\$1,428	\$11,392	\$27,630
Streams/Creeks (VPIH)	\$1,237	\$3,575	\$1	\$2,887	\$7,700
Open Water	\$1,686	\$3,875	\$897	\$5,232	\$11,690
Streams/Creeks	\$1,082	\$2,925	\$944	\$3,949	\$8,901
Annual Legal Defense Allowance					\$129,196
<b>Total Annual</b>					<b>\$1,851,812</b>
<b>Year-50 Endowment Requirement</b>					<b>\$61,727,068</b>
<b>Year 1-50 Cumulative Interest Earnings</b>					<b>\$26,149,507</b>
<b>Net Funding Required for Endowment</b>					<b>\$35,577,561</b>



**Figure 14**  
**SSHCP Other Costs and Assumptions (2015\$)**  
**South Sacramento Habitat Conservation Plan Cost Analysis**

<b>Cost Item</b>	<b>Cost</b>	<b>Assumptions</b>
Agricultural Enhancement Costs	\$6,014,525	\$10 per acre per year over 23,951 easement acres
Changed Circumstances	\$8,404,112	Adds 10% to the cost of habitat management and 15% to the cost of habitat monitoring
HCP Plan Development	\$9,546,963	Reimbursement of \$6.0 million plan preparation cost, financed with interest over the 50-year permit term